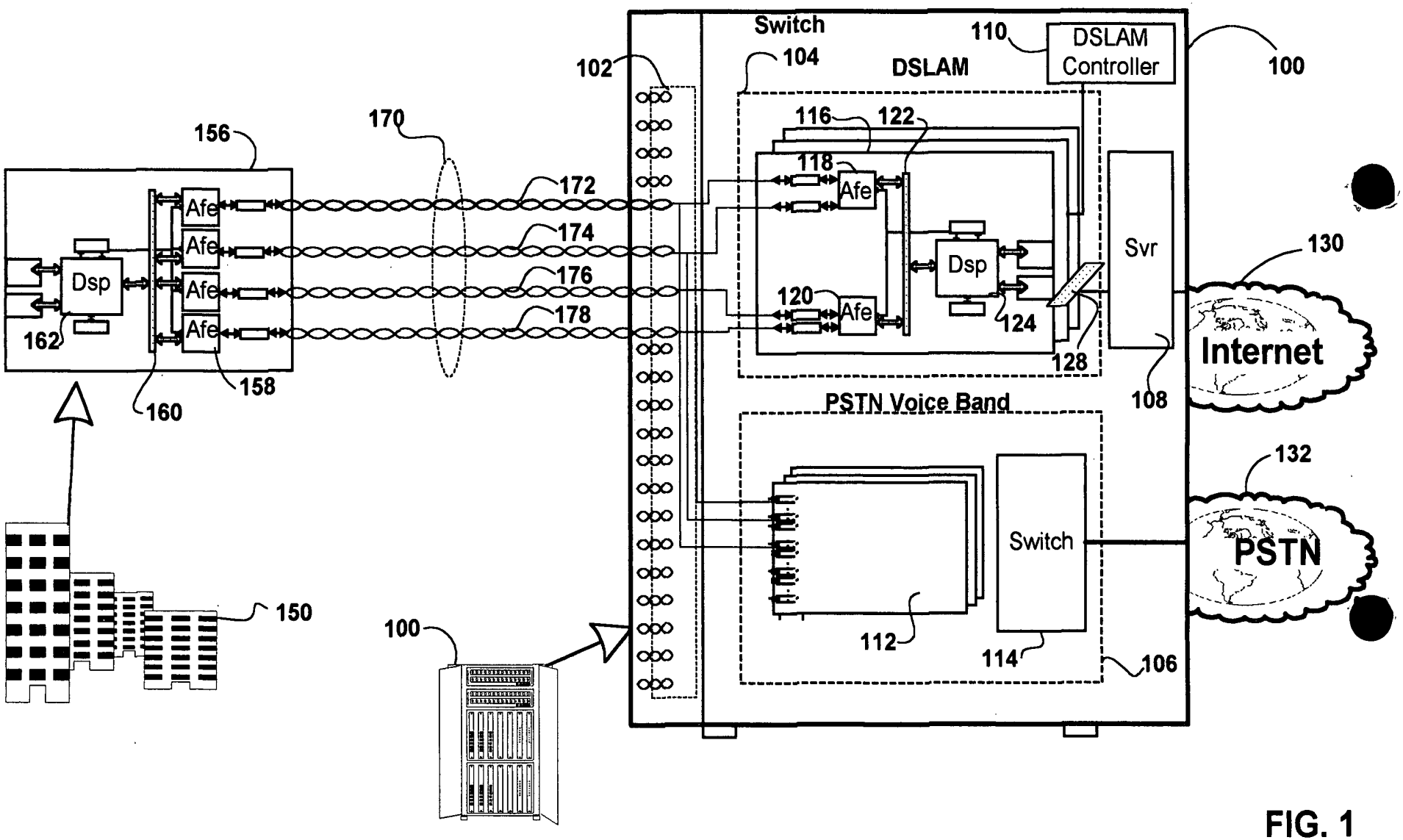

Switch
DSLAM
DSLAM Controller
110
100
102
104
116
122
118
Afe
120
Afe
Dsp
124
128
Svr
130
Internet
108
PSTN Voice Band
132
PSTN
Switch
112
114
106
156
170
172
174
176
178
Afe
Afe
Afe
Afe
Dsp
162
160
158
150
100

FIG. 1

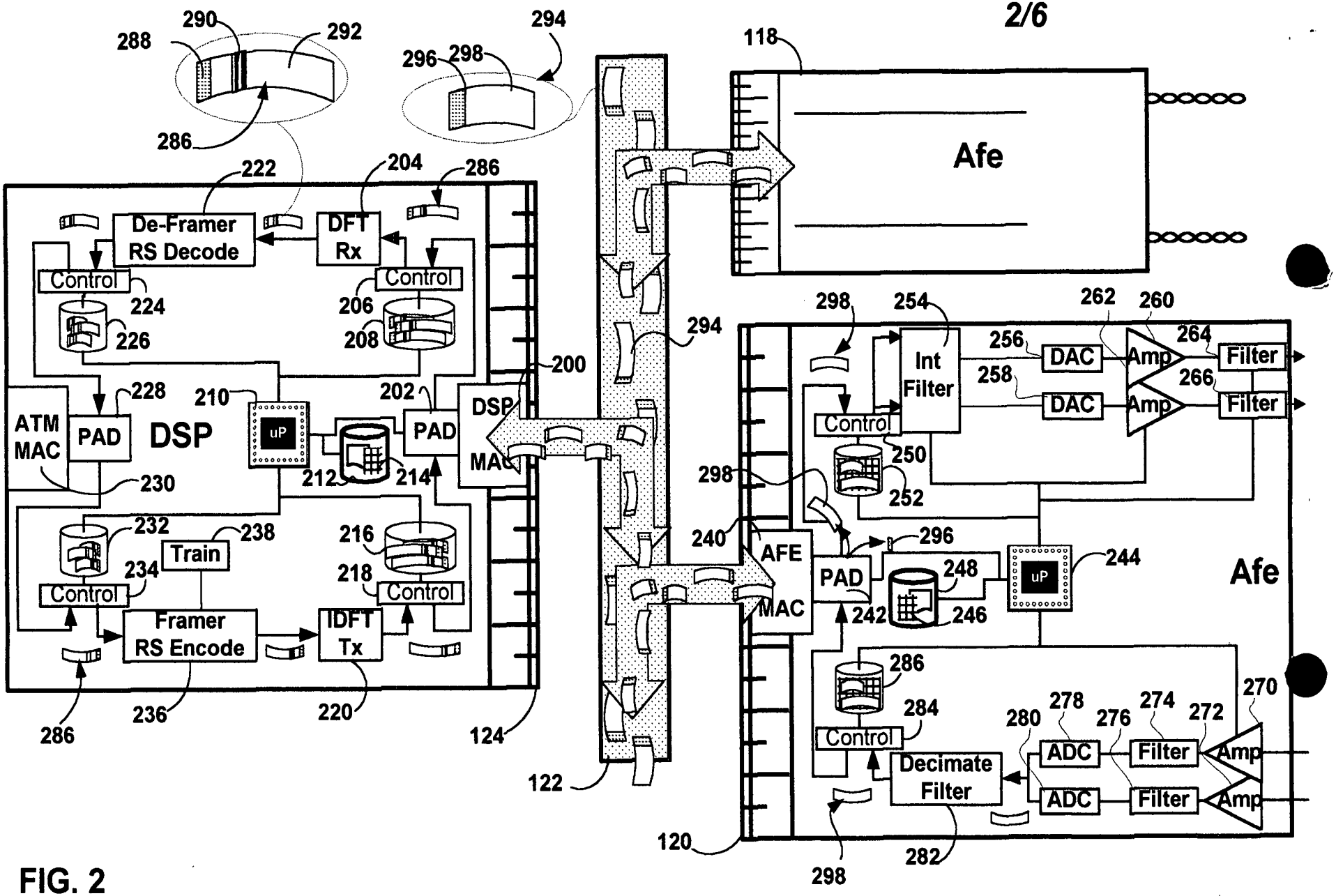

288
290
292
286
294
296
298
118
Afe
222
204
286
De-Framer
RS Decode
DFT
Rx
Control
224
226
206
208
Control
200
294
298
254
262
260
264
Int
Filter
256
DAC
Amp
Filter
258
DAC
Amp
266
Filter
Control
250
252
228
210
202
ATM
MAC
PAD
DSP
uP
PAD
DSP
MAC
212
214
230
298
240
AFE
MAC
296
PAD
248
uP
244
Afe
242
246
232
238
216
Train
234
218
Control
Control
Framer
RS Encode
IDFT
Tx
286
284
Control
Decimate
Filter
280
278
276
274
272
270
ADC
Filter
Amp
ADC
Filter
Amp
286
236
220
124
122
120
298
282

FIG. 2

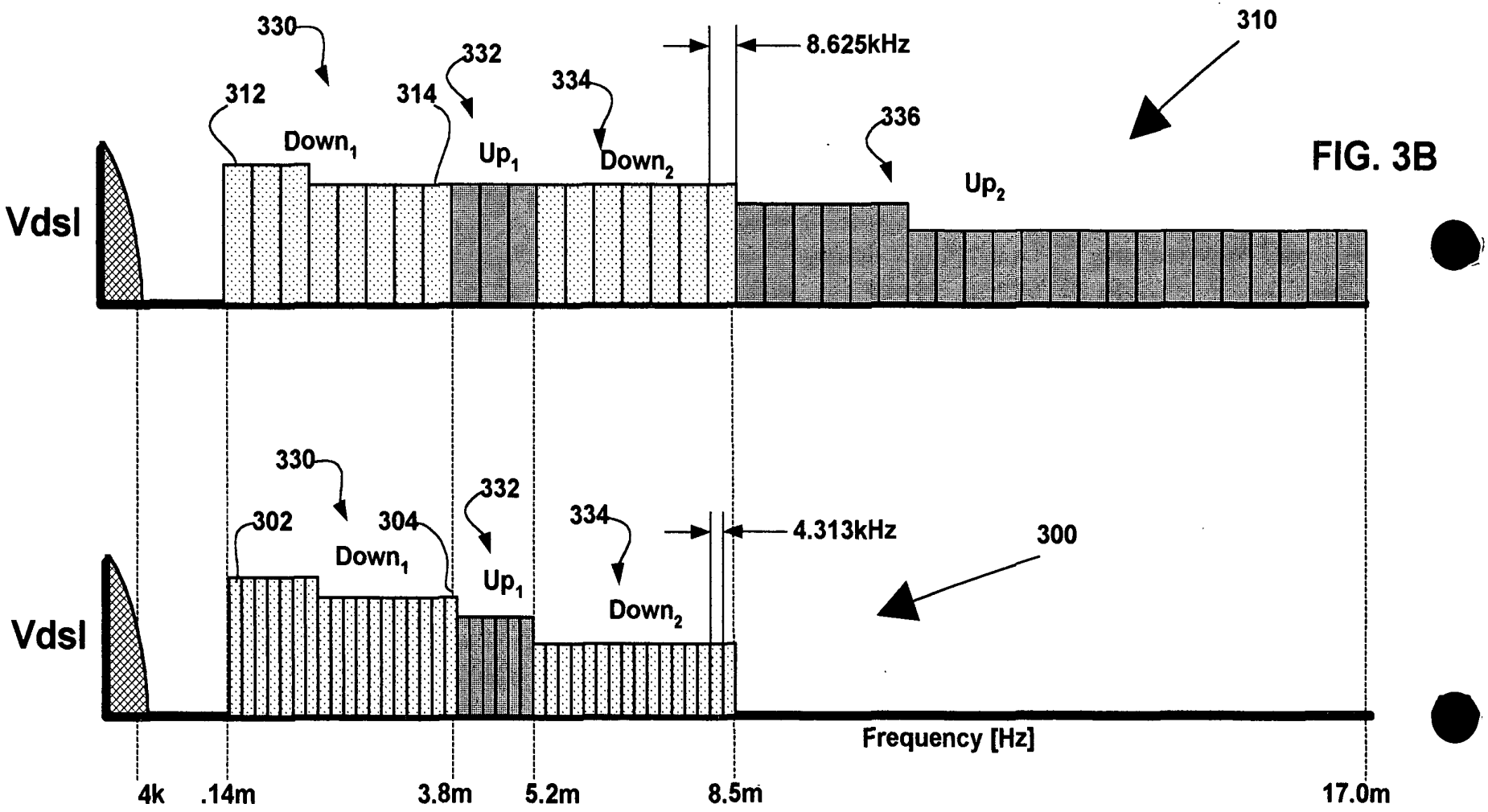
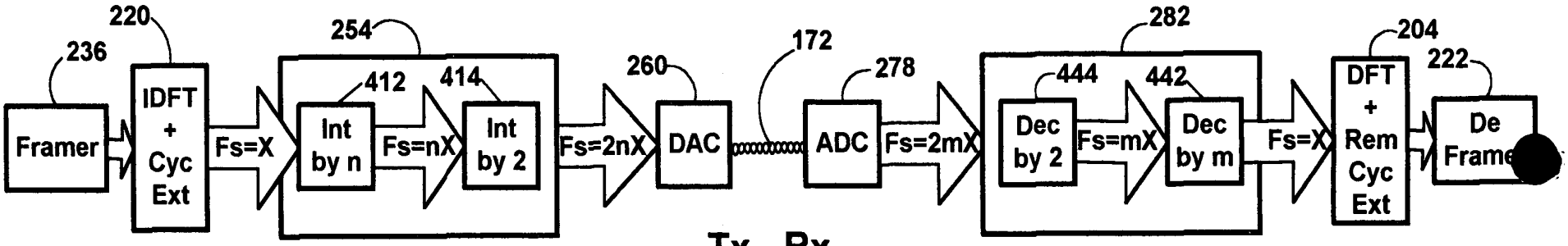

330
332
312
314
334
8.625kHz
310
336
Down1
Up1
Down2
Up2
Vdsl
330
332
302
304
334
4.313kHz
300
Down1
Up1
Down2
Vdsl
Frequency [Hz]
4k
.14m
3.8m
5.2m
8.5m
17.0m

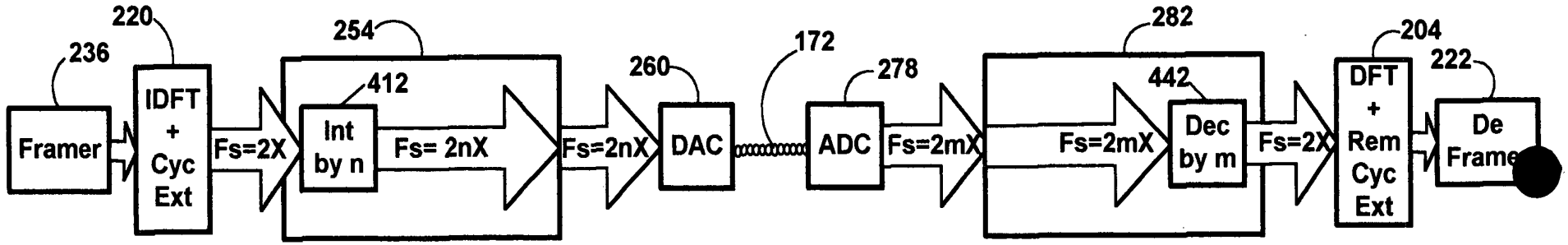
FIG. 3B

FIG. 3A



Tx - Rx
of
Standard tone Spacing

FIG. 4A



Tx - Rx
of
Expanded tone Spacing

FIG. 4B

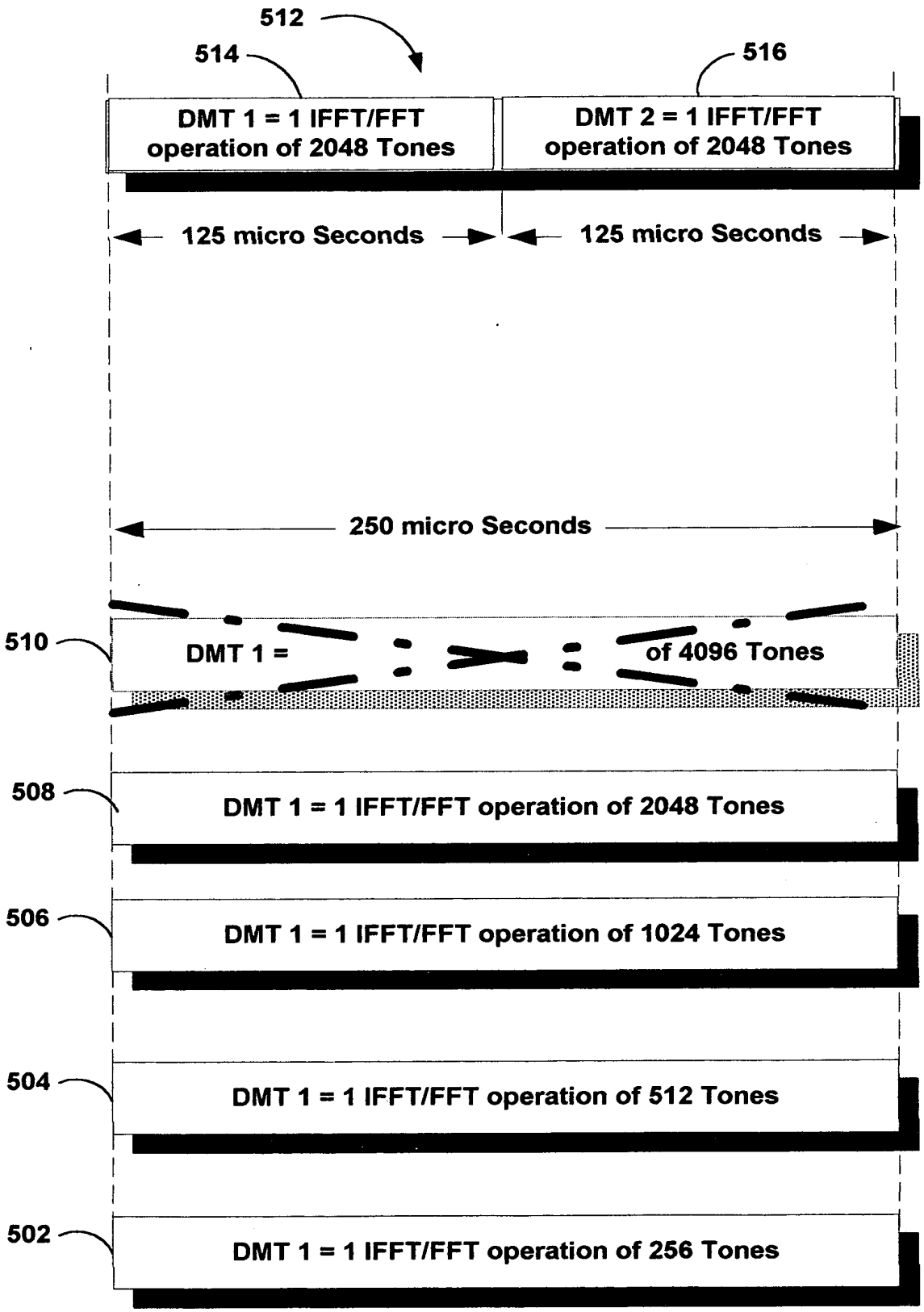

512
514
516
DMT 1 = 1 IFFT/FFT operation of 2048 Tones
DMT 2 = 1 IFFT/FFT operation of 2048 Tones
125 micro Seconds
125 micro Seconds
250 micro Seconds
510
DMT 1 =
of 4096 Tones
508
DMT 1 = 1 IFFT/FFT operation of 2048 Tones
506
DMT 1 = 1 IFFT/FFT operation of 1024 Tones
504
DMT 1 = 1 IFFT/FFT operation of 512 Tones
502
DMT 1 = 1 IFFT/FFT operation of 256 Tones

FIG. 5

214

	Setup Options		
	B	C	D
4.3125 kHz Tone Spacing		Ch. 3-4	Ch. 3-6
8.625 kHz Tone Spacing	Ch. 1-2	Ch. 1	

FIG. 6A

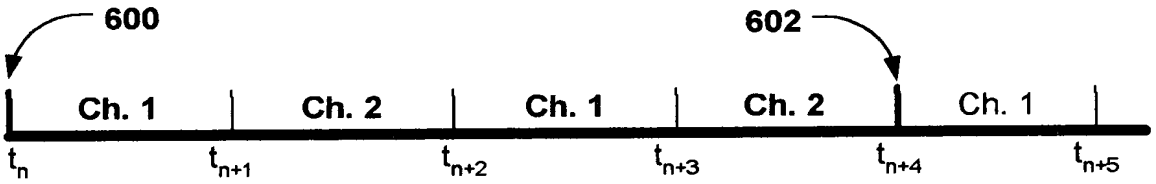


FIG. 6B

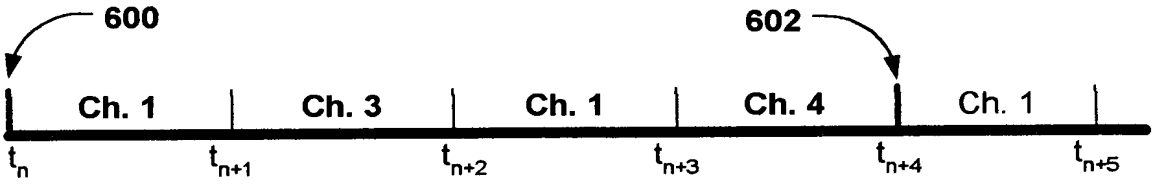


FIG. 6C

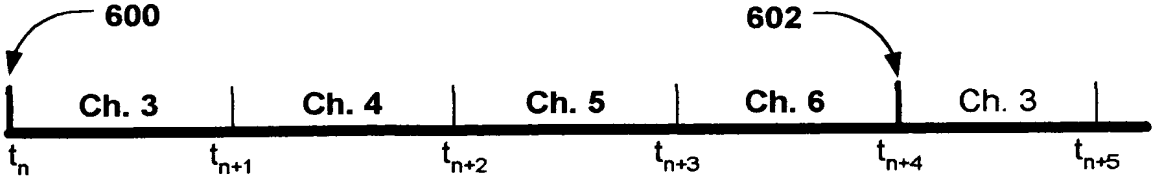


FIG. 6D

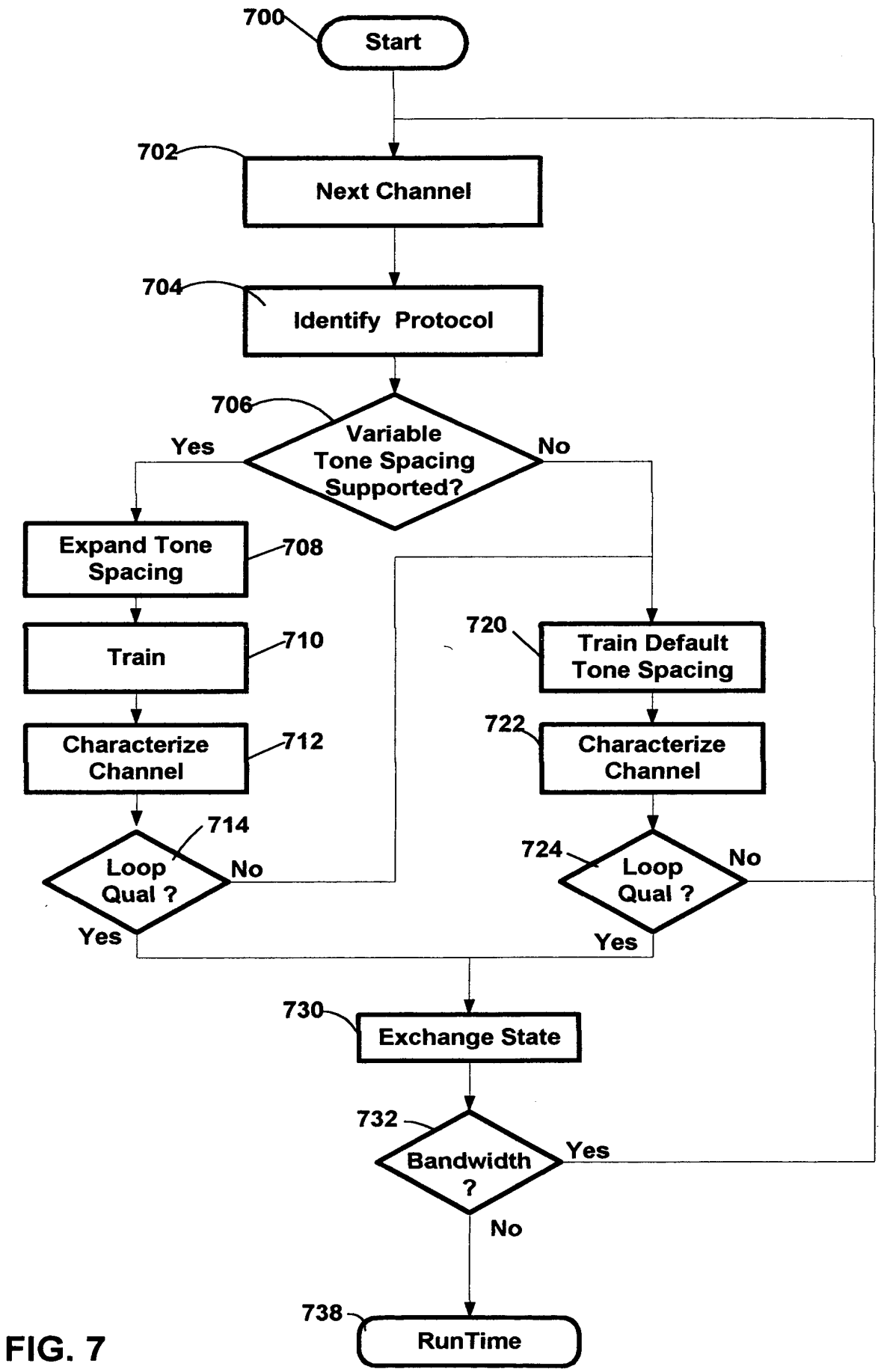

700
Start
702
Next Channel
704
Identify Protocol
706
Variable Tone Spacing Supported?
Yes
No
Expand Tone Spacing
708
Train
710
Characterize Channel
712
714
Loop Qual ?
No
Yes
720
Train Default Tone Spacing
722
Characterize Channel
724
Loop Qual ?
No
Yes
730
Exchange State
732
Bandwidth ?
Yes
No
738
RunTime

FIG. 7